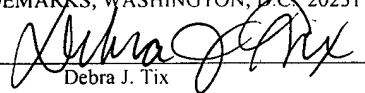


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**Computerized Method and System for Trading of Securities**

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## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention generally relates to computer software. More particularly,  
5 the present invention relates to computer-implemented trading of securities.

### **2. Description of the Related Art**

The securities trading industry has burgeoned since the advent of the Internet. Many companies offer securities trading services through a variety of automated  
10 methods, such as through a telephone or a computer system. The placement of orders to buy or sell securities may be done through the use of an order entry screen on a computer system. Some of the elements of the order entry screen may include: a security transaction, a security symbol, a number of shares to be traded, a dollar amount, a limit price, a trailing stop price, and a stop loss price. As used herein, a "security transaction" may be one of the  
15 following: buy, sell, sell short, stop loss, stop limit, sell to open, sell to close, buy to open, buy to close. Existing order entry screens for placing securities orders require the user to enter all of the information for the order, each time an order is placed. In order to reduce the time it takes the user to submit a securities order for execution, it is desirable to provide a method for storing user-specified order preferences for securities and  
20 using those preferences to automatically populate an order entry screen.

In addition to order entry screens, price charts have also become popular tools with securities traders. A price chart for a particular security is typically a graph of the price movements for the particular security over a period of time. Price charts may be used to recognize trends in the direction and volatility of a particular security. Existing  
25 trading systems typically have price charts available to the user, but they do not allow the user to specify a price point, directly on the price chart, at which the user wishes to conduct a security transaction (e.g., buy, sell, sell short, stop loss, stop limit, sell to open, sell to close, buy to open, buy to close). It is desirable, in the interest of reducing the amount of time it takes the user to submit a securities order for execution, to provide a

method to allow the user to specify a price point, directly on the price chart, at which the user wishes to conduct a security transaction.

There are many methods of analyzing historical securities data. These methods may be referred to as “studies”. Some examples of studies are: a candlestick study, a price patterns study, a resistance lines study, and a triangulation study. Another name for candlestick study is candle study. Many companies offer data over various historical time periods that utilize the concepts of these studies. To make these studies more useful in the time-critical world of day-trading, it is desirable to provide a method for presenting data from these studies in real-time, rather than strictly in historical time. Additionally, it is desirable to provide a method to allow the user to specify a price point, directly on the presentation of real-time study data, at which the user wishes to conduct a security transaction.

### **SUMMARY OF THE INVENTION**

The present invention provides various embodiments of an improved method and system for computerized trading of securities.

In one embodiment, order preferences for securities are entered by a user and are stored on a computer system for future use as default values in response to the user placing an order. The user may adjust any or all of the default values at the time of order placement. The time that it takes to complete an order may potentially be reduced through the use of previously selected order preferences being displayed to the user in the order placement window.

In another embodiment, a user may specify a price-point on a price chart window for a particular security. For the specified price-point, the user may specify a security transaction flag option indicating the security transaction (e.g., buy, sell, sell short, stop loss, stop limit, sell to open, sell to close, buy to open, buy to close) to be taken in response to the specified price-point being reached. The computer system then monitors the price fluctuation of the particular security, and takes the specified security transaction in response to the specified price-point being reached.

In another embodiment, real-time results for user-selected studies are utilized as

a tool for a user to decide on a price-point at which to initiate a particular security transaction on a particular security. The user is presented with a list of studies from which to choose.

For the user-selected studies, the user may further enter values for any  
5 parameters required for the studies. The real-time results for the user-selected studies are categorized into one of three categories: buy, sell, and inconclusive. Those studies in the list of studies not selected by the user are placed in a fourth category: inactive.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

10 Figure 1 is a network diagram of a wide area network which is suitable for implementing various embodiments;

Figure 2 is an illustration of a typical computer system which is suitable for implementing various embodiments;

15 Figure 3 is a flowchart illustrating the collection of security-specific order preferences according to one embodiment;

Figure 4 is a flowchart illustrating the collection of generic order preferences according to one embodiment;

Figure 5 is an illustration of a security-specific order preferences window which is suitable for implementing various embodiments;

20 Figure 6 is an illustration of a generic order preferences window which is suitable for implementing various embodiments;

Figure 7 is a flowchart illustrating a method of submitting an order for execution through the use of an order placement window according to one embodiment;

25 Figure 8 is a flowchart illustrating a method of submitting an order for execution through the use of a price chart window according to one embodiment;

Figure 9 is a flowchart illustrating a method of submitting an order for execution through the use of real-time results for user-selected studies according to one embodiment;

30 Figure 10 is an illustration of a single pair of resistance lines according to one embodiment;

Figure 11 is an illustration of a pair of candlesticks according to one embodiment;  
Figure 12 is a flowchart illustrating a study details window according to one embodiment;

Figure 13 is a flowchart illustrating the four categories (buy, sell, inconclusive,  
5 inactive) into which the studies may be grouped according to one embodiment;

Figure 14 is a flowchart illustrating a method of submitting an order for execution through the use of a user-specified price point according to one embodiment;

Figure 15 is a flowchart illustrating a method of submitting an order for execution through the use of real-time results for a study according to one embodiment;

10 Figure 16 is an illustration of a price patterns study window which is suitable for implementing various embodiments;

Figure 17 is an illustration of a security-specific order placement window which is suitable for implementing various embodiments;

15 Figure 18 is an illustration of a price chart window which is suitable for implementing various embodiments;

Figure 19 is an illustration of a candle studies window which is suitable for implementing various embodiments;

Figure 20 is an illustration of a parameter window for the candle studies window which is suitable for implementing various embodiments;

20 Figure 21 is an illustration of a resistance line study window with a daily time interval which is suitable for implementing various embodiments;

Figure 22 is an illustration of a resistance line study window with a 5 minute time interval which is suitable for implementing various embodiments;

25 Figure 23 is an illustration of a buy/sell indicator window which is suitable for implementing various embodiments.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof are shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that the drawings and  
30 detailed description thereto are not intended to limit the invention to the particular form

disclosed, but on the contrary, the intention is to cover all modifications, equivalents and alternatives falling within the spirit and scope of the present invention as defined by the appended claims.

5

## **DETAILED DESCRIPTION OF SEVERAL EMBODIMENTS**

### **Figure 1: Wide Area Network**

Figure 1 illustrates a wide area network (WAN) according to one embodiment. WAN 102 is a network that spans a relatively large geographical area. The Internet is an example of WAN 102. WAN 102 typically includes a plurality of computer systems which are interconnected through one or more networks. Although one particular configuration is shown in Figure 1, WAN 102 may include a variety of heterogeneous computer systems and networks which are interconnected in a variety of ways and which run a variety of software applications.

One or more local area networks (LANs) 104 may be coupled to WAN 102. A LAN 104 is a network that spans a relatively small area. Typically, a LAN 104 is confined to a single building or group of buildings. Each node (i.e., individual computer system or device) on a LAN 104 preferably has its own CPU with which it executes programs, and each node is also able to access data and devices anywhere on the LAN 104. The LAN 104 thus allows many users to share devices (e.g., printers) as well as data stored on file servers. The LAN 104 may be characterized by any of a variety of types of topology (i.e., the geometric arrangement of devices on the network), of protocols (i.e., the rules and encoding specifications for sending data, and whether the network uses a peer-to-peer or client/server architecture), and of media (e.g., twisted-pair wire, coaxial cables, fiber optic cables, radio waves).

Each LAN 104 includes a plurality of interconnected computer systems and optionally one or more other devices: for example, one or more workstations 110a, one or more personal computers 112a, one or more laptop or notebook computer systems 114, one or more server computer systems 116, and one or more network printers 118. As illustrated in Figure 1, an example LAN 104 may include one of each of computer

systems 110a, 112a, 114, and 116, and one printer 118. The LAN 104 may be coupled to other computer systems and/or other devices and/or other LANs 104 through WAN 102.

One or more mainframe computer systems 120 may be coupled to WAN 102. As shown, the mainframe 120 may be coupled to a storage device or file server 124 and  
5 mainframe terminals 122a, 122b, and 122c. The mainframe terminals 122a, 122b, and 122c may access data stored in the storage device or file server 124 coupled to or included in the mainframe computer system 120.

WAN 102 may also include computer systems which are connected to WAN 102 individually and not through a LAN 104: as illustrated, for purposes of example, a  
10 workstation 110b and a personal computer 112b. For example, WAN 102 may include computer systems which are geographically remote and connected to each other through the Internet.

#### Figure 2: Typical computer system

15 Figure 2 illustrates a typical computer system 150 which is suitable for implementing various embodiments of a system and method for computerized trading of securities. Each computer system 150 typically includes components such as a CPU 152 with an associated memory medium such as floppy disks 160. The memory medium may store program instructions for computer programs, wherein the program instructions are  
20 executable by the CPU 152. The computer system 150 may further include a display device such as a monitor 154, an alphanumeric input device such as a keyboard 156, and a directional input device such as a mouse 158. The computer system 150 may be operable to execute the computer programs to implement trading of securities as described herein.

25 The computer system 150 preferably includes a memory medium on which computer programs according to various embodiments may be stored. The term “memory medium” is intended to include an installation medium, e.g., a CD-ROM, or floppy disks 160, a computer system memory such as DRAM, SRAM, EDO RAM, Rambus RAM, etc., or a non-volatile memory such as a magnetic media, e.g., a hard drive, or optical storage.  
30 The memory medium may include other types of memory as well, or combinations thereof.

In addition, the memory medium may be located in a first computer in which the programs are executed, or may be located in a second different computer which connects to the first computer over a network. In the latter instance, the second computer provides the program instructions to the first computer for execution. Also, the computer system 150 may take  
5 various forms, including a personal computer system, mainframe computer system, workstation, network appliance, Internet appliance, personal digital assistant (PDA), television system or other device. In general, the term "computer system" can be broadly defined to encompass any device having a processor which executes instructions from a memory medium.

10 The memory medium preferably stores a software program or programs for trading of securities as described herein. The software program(s) may be implemented in any of various ways, including procedure-based techniques, component-based techniques, and/or object-oriented techniques, among others. For example, the software program may be implemented using ActiveX controls, C++ objects, JavaBeans, Microsoft Foundation  
15 Classes (MFC), browser-based applications (e.g., Java applets), traditional programs, or other technologies or methodologies, as desired. A CPU, such as the host CPU 152, executing code and data from the memory medium includes a means for creating and executing the software program or programs according to the methods and/or block diagrams described below.

20 Figure 3: Security-specific order preferences

Figure 3 shows an embodiment of the system and method for computerized trading of securities. As shown in Figure 3, according to one embodiment, a user may be prompted to enter one or more security-specific order preferences for each of  
25 one or more securities in step 201. As used herein, an "order preference" is a default value to be used in response to a user placing an order for a security. In step 202, the one or more security-specific order preferences may be stored in a memory on a computer system (e.g., on a user's computer or on a server). In step 203, the one or more security-specific order preferences may be used as default values in response to  
30 the user placing an order for one of the one or more securities.



Figure 4: Generic order preferences

Figure 4 shows an embodiment of the system and method for computerized trading of securities. As shown in Figure 4, according to one embodiment, a user may be prompted to enter one or more generic order preferences for a generic security in step 211. In step 212, the one or more generic order preferences may be stored in a memory on a computer system. In step 213, the one or more generic order preferences for the generic security may be used as default values for all orders for securities without corresponding security-specific order preferences.

Figure 5: Security-specific order preferences window

Figure 5 illustrates a security-specific order preferences window 500 according to one embodiment. The security-specific order preferences window 500 may be included within a view screen 155. The view screen 155 may be displayed on monitor 154, of Figure 2. The security-specific order preferences window 500 may include one or more user interface elements, such as a security symbol 501, a number of shares 502, a dollar amount 503, a limit price 504, a trailing stop price 505, and a stop loss price 506. As shown in Figure 5, the security symbol 501 is "T", which is the security symbol of AT&T Corporation, the number of shares 502 is 5000 shares, the dollar amount 503 is \$40,000, the limit price 504 is \$0, the trailing stop price 505 is \$0.125, and the stop loss price 506 is \$0. As used herein, a "user interface element" is a command, control, or mechanism for a user to input data into a computer program. As used herein, a "limit order" is an order to buy a specified quantity of a security at or below a specified price, or to sell it at or above a specified price. As used herein, a "limit price" is the price specified in a limit order. As used herein, a "trailing stop order" is a stop loss order that follows the prevailing price trend. As used herein, a "trailing stop price" is the price specified in a trailing stop order. As used herein, a "stop loss order" is an order to buy or sell a certain quantity of a certain security if a specified price is reached or passed, wherein the specified price is below the current market price and the order is to sell. As used herein, a "stop loss price" is the price specified in a stop loss order.

In some embodiments, the user need not complete all fields on window 500 for each security. For example, specifying a number of shares 502 may be sufficient in lieu of specifying a dollar amount 503.

Alternatively, the security-specific order preferences window 500 may include  
5 additional user interface elements (not shown), such as a “lot indicator” for the minimum amount of the lot which must be bought or sold. As used herein, a “lot” is a group of items which are bought or sold together. For example, if the user specifies the “lot indicator” to be 25% then only if at least 25% of the order can be filled will an offer to buy/sell from the user be accepted. The “lot indicator” may have a default value (i.e.,  
10 100%) to be used if the user does not specify a value.

Another user interface element (not shown) may be a “limit price indicator” for the limit price 504. The “limit price indicator” may require a pair of prices (a maximum price and a minimum price) and a percentage of the difference between the two prices. Two examples of maximum and minimum price pairs are the bid and ask price of a  
15 security and the 52-week high and 52-week low price of a security. As used herein, a “bid” is the highest price any buyer is willing to pay for a given security at a given time. Conversely, an “ask” is the lowest price any seller is willing to accept for a given security at a given time. As used herein, a “52-week high” is the highest price that a given security has traded at in the previous 52 weeks. Similarly, a “52-week low” is the  
20 lowest price that a given security has traded at in the previous 52 weeks. The “limit price indicator” may have a default value (i.e., 50%) for the percentage of the difference between the two prices to be used if the user does not specify a percentage. Also, the pair of prices may be identified by a term (i.e., “bid/ask” or “52-week”) or by dollar amounts.

25 Figure 6: Generic order preferences window

Figure 6 illustrates a generic order preferences window 600 according to one embodiment. The generic order preferences window 600 may be included within a view screen 155. The view screen 155 may be displayed on monitor 154, of Figure 2. The generic order preferences window 600 may include one or more user interface elements,  
30 such as a security symbol 601, a number of shares 602, a dollar amount 603, a limit price

604, a trailing stop price 605, and a stop loss price 606. As shown in Figure 6, the security symbol 601 is "DEFAULT", which indicates the generic security. Order preferences that are set for the generic security may be used as defaults during order entry for any security not having its own security-specific settings. Also shown in Figure 6, the number of shares 602 is 500 shares, the dollar amount 603 is \$4,000, the limit price 604 is \$0, the trailing stop price 605 is \$0.125, and the stop loss price 606 is \$0.

In some embodiments, the user need not complete all fields on window 600. For example, specifying a number of shares 602 may be sufficient in lieu of specifying a dollar amount 603.

Alternatively, the generic order preferences window 600 may include additional user interface elements as described for Figure 5 above.

#### Figure 7: Submit an order for execution - order placement window

Figure 7 shows steps that may illustrate submitting an order for execution through the use of an order placement window, according to one embodiment. In step 241, the user may be prompted to enter the security symbol. In step 242, the order preferences previously selected by the user in the order preferences window may be presented in the order placement window as default values. By automatically presenting previously selected order preferences based on the security symbol entered, the order entry may be completed relatively rapidly. Speed of order execution is an important aspect for securities trading, particularly for day-trading.

In step 243, the user may be allowed to adjust one or more of the order preferences of the order placement window. In step 244, the order may be submitted for execution, based on the user's input. As used herein, an "order execution" is the completion of an order to buy or sell a security.

#### Figure 8: Submit an order for execution - price chart window

Figure 8 shows steps that may illustrate submitting an order for execution through the use of a price chart window, according to one embodiment. In step 251,

the user may be presented with a price chart window for one or more securities.

In step 252, the user may specify a price-point on the price chart window, for one or more securities. In step 253, the user may specify a security transaction flag option for the user-specified price-point on the price chart window, for one or more securities. As used herein, a “flag” is a software mark or variable that signals a particular condition or status. As used herein, a “flag option” is the condition or status, such as the values for a security transaction: a buy flag, a sell flag, a sell short flag, a stop loss flag, and a stop limit flag. For example, a “buy flag at \$42” indicates the desire of the user to purchase the particular security for which the buy flag has been set, in response to that security beginning trading at \$42. In step 254, the price fluctuation of each security may be monitored. In step 255, the point in time at which the user-specified price-point is reached may be determined, for each security. In step 256, the order may be submitted for execution, for each security, in response to the user-specified price-point being reached.

15 Figure 9: Submit an order for execution - using real-time results for user-selected studies

Figure 9 shows steps that may illustrate submitting an order for execution through the use of real-time results for user-selected studies, according to one embodiment. In step 261, the user may be presented with a list of studies. In step 262, the user may be allowed to select one or more of the studies from the list for a particular user-specified security. In step 263, the user may be prompted to enter one or more parameters for the user-selected studies. In step 264, real-time results of the user-selected studies for each security may be displayed. In step 265, the order may be submitted for execution, based on the real-time results.

25 Figure 10: A single pair of resistance lines

Figure 10 illustrates a single pair of resistance lines according to one embodiment. As used herein, “resistance” indicates a price level at which rising prices have stopped rising and either moved sideways or reversed direction. The single pair of resistance lines are a subset of the illustration in Figure 24. In one embodiment, the graph on which the resistance lines are placed may be a candlestick study. A series of candlesticks 1000,

one for each time period, may be displayed. For more detail on candlesticks, refer to Figure 11. An upper resistance line 1001 and a lower resistance line 1002 may be identified. The distance between the upper resistance line 1001 and the lower resistance line 1002 is user-specified. This distance may be stored in a “points for height” parameter. A “cushion around height” parameter may be specified to represent an acceptable price range for the pattern above the upper resistance line 1001 and below the lower resistance line 1002.

The pair of resistance lines 1001 and 1002 may be drawn on the graph in response to the patterns reaching at least a user-specified number of time periods. The user-specified number of time periods may be stored in a “number of bars for width” parameter representing a minimum width measured in candles. If the resistance lines study finds an area of resistance in the graph that is comprised of fewer candles than specified in the “number of bars for width” parameter, then that area of resistance is ignored and no resistance lines are shown. If the price of the security breaks the upper resistance line, then the price of the security will probably increase. If the price of the security breaks the lower resistance line, then the price of the security will probably decrease. Resistance is a highly individual study. Parameters which work for one security will generally not produce satisfactory results for another security. Typically, the larger the price range for the security, the larger the height parameter.

A triangulation study is similar to a resistance lines study. The difference between the triangulation study and the resistance lines study is that the resistance lines are sloped for triangulation and straight for resistance.

#### Figure 11: A pair of candlesticks

Figure 11 illustrates a pair of candlesticks according to one embodiment. A candlestick is a graph plotting an open price, a close price, a high price, and a low price for a security for a user-specified time period. In one embodiment, a candlestick is created by following these steps: (a) plot four prices for the user-specified time period (an open price 1104, a close price 1103, a high price 1101, a low price 1106); (b) draw a first horizontal line, using the open price 1104 as the mid-point; (c) draw a second

horizontal line, parallel to the first horizontal line, using the close price 1103 as the mid-point; (d) connect a left-side end point of the first horizontal line to a left-side end point of the second horizontal line, completing a third side of a rectangle where a first side of the rectangle is the first horizontal line and a second side of the rectangle is the second horizontal line; (e) connect a right-side end point of the first horizontal line to a right-side end point of the second horizontal line, completing a fourth side of the rectangle. If the open price 1104 for the security for the user-specified time period is higher than the close price 1103 for the security for the user-specified time period, then fill in the rectangle with a dark color (e.g., black, red). Conversely, if the open price 1104 for the security for the user-specified time period is lower than the close price 1103 for the security for the user-specified time period, then fill in the rectangle with a light color (e.g., white, green). From a mid-point of a top side of the rectangle (this mid-point is the open price 1104 when the open price 1104 for the security for the user-specified time period is higher than the close price 1103 for the security for the user-specified time period. Conversely this mid-point is the close price 1103 when the close price 1103 for the security for the user-specified time period is higher than the open price 1104 for the security for the user-specified time period), draw a line to the high price 1101. From a mid-point of a bottom side of the rectangle (this mid-point is the open price 1104 when the open price 1104 for the security for the user-specified time period is lower than the close price 1103 for the security for the user-specified time period. Conversely this mid-point is the close price 1103 when the close price 1103 for the security for the user-specified time period is lower than the open price 1104 for the security for the user-specified time period), draw a line to the low price 1106. The range between the open price 1104 and the close price 1103, which is shown by the rectangle, is referred to as the real body. If the rectangle is filled in with a light color, the rectangle is referred to as a white real body 1110, and conversely, if the rectangle is filled in with a dark color, the rectangle is referred to as a black real body 1108. The range between the top of the real body and the high price 1101 is referred to as an upper shadow 1102. The range between the bottom of the real body and the low price 1106 is referred to as a lower shadow 1105. The candlestick indicates a bullish signal in response to the closing price

1103 being greater than the opening price 1104, and conversely, the candlestick indicates a bearish signal in response to the closing price 1103 being equal to or lower than the opening price 1104.

5 Figure 12: Study Details Window

Figure 12 illustrates one embodiment of a method for using a study details window. As shown in Figure 12, according to one embodiment, in step 291, a study details window may be presented to the user for each security. In step 292, default values for each study may be presented. In step 293, the user may be allowed to adjust  
10 one or more of the default values. In step 294, the above may be repeated, for each study selected.

Figure 13: Four categories (buy, sell, inconclusive, inactive)

Figure 13 shows steps that may illustrate the categories into which the real-time  
15 results for user-selected studies may be placed, according to one embodiment. In step 301, the buy category may include user-selected studies for which the ratio of a number of profitable buy signals to a total number of buy signals for the past history time period reaches or exceeds the threshold. As used herein, a “threshold” is a value above which something is true or will take place and below which it is not true or will not take place.  
20 As used herein, a “buy signal” is any indication of when it is time to buy a particular security. As used herein, a “sell signal” is any indication of when it is time to sell a particular security. In step 302, the sell category may include user-selected studies for which the ratio of a number of profitable sell signals to a total number of sell signals for the past history time period reaches or exceeds the threshold. In step 303, the  
25 inconclusive category may include user-selected studies for which both a buy signal ratio and a sell signal ratio fall below their respective thresholds. In step 304, the inactive category may include those studies which were not user-selected. In step 305, the ratio of the number of profitable buy/sell signals to the total number of buy/sell signals for the past history time period for each of the user-selected studies may be displayed.  
30 In step 306, the ratio of the number of profitable buy/sell signals to the total number of

buy/sell signals for the past history time period for each of the user-selected studies may be used to determine whether or not to automatically submit an order for execution for the user-specified security.

5 Figure 14: Submit an order for execution - using a user-specified price point

Figure 14 shows steps that may illustrate submitting an order for execution through the use of a price chart window, according to one embodiment. In step 311, the user may specify a security transaction flag option for the user-specified price-point on the price chart window, for the particular user-specified security. In step 312, the price  
10 fluctuation of the particular user-specified security may be monitored. In step 313, the point in time at which the user-specified price-point is reached may be determined, for the particular user-specified security. In step 314, the order may be automatically submitted for execution, for the particular user-specified security, in response to the user-specified price-point being reached.

15

Figure 15: Submit an order for execution - using real-time results for a study

Figure 15 shows steps that may illustrate submitting an order for execution through the use of real-time results for a study, according to one embodiment. In step 331, the user may be prompted to enter one or more parameters for a study (e.g., a  
20 resistance lines study, a triangulation study, a candlestick study, or a price patterns study), for the particular user-specified security. In step 332, the real-time results for the study may be displayed, for the particular user-specified security. In step 333, the order may be automatically submitted for execution, for the particular user-specified security, based on the results from the study reaching a pre-determined level.

25

Figure 16: Price patterns study window

Figure 16 illustrates a price patterns study window 1600 according to one embodiment. The price patterns study window 1600 may include a series of candlesticks 1608, one for each time period. For more detail on candlesticks, refer to Figure 11. As  
30 used herein, a “double bottom” is a price pattern that has four sections: a price dip, a price



peak, another price dip, followed by a sharp break upward in price. As used herein, a “double top” is a price pattern that has four sections: a price peak, a price dip, another price peak, followed by a sharp break downward in price. Generally, a double bottom is considered a buy signal and a double top is considered a sell signal. Double bottoms 1601 and 1603 and double tops 1602, 1604, 1605, 1606, and 1607 may be identified.

The double bottom 1601 and the double top 1602 appear too early in the chart to be useful signals for the user to make a buy/sell decision. The double bottom 1603 is made up of a price dip in early July, a price peak in late July, another price dip in early August, followed by a sharp break upward in price on August 6. It is noted that no further double bottoms are shown in Figure 16 because the candles do not dip lower than the August 6 price. The double top 1604 is made up of a price peak on August 11, a price dip on August 12, another price peak on August 16, followed by a sharp break downward in price on August 17. However, the double top 1604 is a weak signal because the prices start increasing at the next candle, August 18.

The double top 1605 is made up of a price peak on August 16, a price dip on August 20, another price peak on August 25, followed by a sharp break downward in price on August 26. The double top 1606 is made up of a price peak on August 31, a price dip on September 2, another price peak on September 6, followed by a sharp break downward in price on September 7. However, the double top 1606 is a weak signal, similar to the double top 1604. The double top 1607 is made up of a price peak on September 6, a price dip on September 7, another price peak on September 10, followed by a sharp break downward in price on September 13. It is noted that no further double tops are shown in Figure 16, as the chart takes a downward turn from the local high that was reached on September 10.

#### Figure 17: Security-specific order placement window

Figure 17 illustrates a security-specific order placement window 1900 according to one embodiment. The security-specific order placement window 1900 may be included within a view screen 155. The view screen 155 may be displayed on monitor 154, of Figure 2. The security-specific order placement window 1900 may include one

or more user interface elements, e.g., a security symbol 1901; a security transaction 1902 (which may be one of the following: buy, sell, sell short, stop loss, stop limit), and a list of order preferences 1903. Order preferences 1903 may be retrieved from the values stored on the order preferences window (see Figures 5 and 6) and may include a number of shares to be traded, a dollar amount, a limit price, a trailing stop price, and a stop loss price.

As shown in Figure 17, the security symbol 1901 is “AOL”, which is the security symbol of America Online, Incorporated. The values in the list of order preferences 1903 are as follows: the number of shares is 100 shares, the dollar amount is \$8,800, the limit price is \$0, the trailing stop price is \$0.125, and the stop loss price is \$0. These order preferences 1903 values may be retrieved from values stored for the specific security (AOL) or from values stored for the generic security (DEFAULT) if no values were entered for AOL. These order preferences 1903 values may be modified by the user on the order placement window 1900. When the user is satisfied with the entries on the order placement window 1900, the user may then submit the order for execution by pressing the OK push-button 1904.

#### Figure 18: Price chart window

Figure 18 illustrates a price chart window 2000 according to one embodiment. The price chart window 2000 may include a security symbol 2001, a price range axis 2002, and a timestamp axis 2003. As shown in Figure 18, the security symbol 2001 is “DELL”, which is the security symbol of Dell Computer Corporation. A series of candlesticks 2004, one for each time period, may be displayed. For more detail on candlesticks, refer to Figure 11. One or more user-specified flags may be used to indicate a security transaction which the user would like performed on the security symbol 2001. These user-specified flags may each have one security transaction, chosen from the following: buy, sell, sell short, stop limit, and stop loss. As shown in Figure 18, a buy security transaction flag 2005 is user-specified at a \$39 15/16 price, a sell security transaction flag 2006 is user-specified at a \$49 9/16 price, a sell short security transaction flag 2007 is user-specified at a \$36 13/16 price, a stop limit security transaction flag 2008

is user-specified at a \$47 price, and a stop loss security transaction flag 2009 is user-specified at a \$34 ½ price. The price fluctuation of the security symbol 2001 may be monitored. In response to the user-specified price point being reached for any security transaction flag, an order for the security transaction for the security symbol 2001 is automatically submitted for execution. The dollar amount of the order may be retrieved from the lesser value of the two order preferences: number of shares to be traded and dollar amount (see Figures 5 and 6).

Figure 19: Candle studies window

Figure 19 illustrates a candle studies window 2100 according to one embodiment. The candle studies window 2100 may include a series of candlesticks 2101, one for each time period. Those candlesticks which form a particular pattern are labeled accordingly. As shown in Figure 19, there are three dark clouds 2102, one harami bull 2103, one inverted hammer 2104, one piercing line 2105, and one inverted hanging man 2106. Refer to Figure 20 for detailed descriptions of these and other candlestick formations.

Figure 20: Parameter window for the candle studies window

Figure 20 illustrates a parameter window 2200 for the candle studies window of Figure 19 according to one embodiment. The parameter window 2200 may include a list of formations, such as hammer/hanging man 2202, inverted hammer/hanging man 2204, piercing line/dark cloud 2206, engulfing patterns 2208, harami 2210, harami cross 2212, doji star 2214, morning/evening star 2216, morning/evening doji star 2218, abandoned baby 2220, upside gap/two crows 2222, rising/falling three 2224, and falling raindrop/shooting star 2226. As shown in Figure 20, the hammer/hanging man 2202 formation is highlighted, and the example box 2228 displays two sample formations: the first indicating a bull sign (hammer), the second indicating a bear sign (hanging man). Similarly, each of the other formations listed may show a bull and bear example candlestick in example box 2228 when highlighted. Each formation listed is further described below. It is important to note that identical candlesticks may have

different meanings depending on where they occur within the context of prior trends and formations.

As used herein, a “hammer” is a candlestick with a long upper shadow and small real body. The upper shadow should be at least twice the length of the real body, and there should be no or very little lower shadow. The body may be either black or white. This candlestick occurs within the context of a downtrend to be considered a hammer.

As used herein, a “hanging man” is a candlestick with a long lower shadow and small real body. The lower shadow should be at least twice the length of the real body, and there should be no or very little upper shadow. The body may be either black or white. This candlestick occurs within the context of an uptrend to be considered a hanging man.

As used herein, an “inverted hammer” is a candlestick with a long lower shadow and small real body. The lower shadow should be at least twice the length of the real body, and there should be no or very little upper shadow. The body may be either black or white. This candlestick occurs within the context of a downtrend to be considered an inverted hammer.

As used herein, an “inverted hanging man” is a candlestick with a long upper shadow and small real body. The upper shadow should be at least twice the length of the real body, and there should be no or very little lower shadow. The body may be either black or white. This candlestick occurs within the context of an uptrend to be considered an inverted hanging man.

As used herein, a “piercing line” is a bullish signal, and is the opposite of a “dark cloud”. The first candlestick of the pattern consists of a black real body. The second candlestick consists of a long white real body. The second candlestick has an open price sharply lower, under the low price of the first candlestick. The second candlestick has a close price above the mid-point of the first candlestick’s black real body. A “piercing line” formation occurs within a downtrend.

As used herein, a “dark cloud” is a bearish signal, and is the opposite of a “piercing line”. The first candlestick of the pattern consists of a strong white real

body. The second candlestick has an open price above the top of the upper shadow of the first candlestick, but the close price of the second candlestick is at or near the low price of the second candlestick, and well into the first candlestick's white real body.

As used herein, a "bullish engulfing pattern" is a candlestick with a white real  
5 body totally covering, "engulfing" the prior day candlestick's real body. The market should be in a definable trend, not chopping around sideways. The shadows of the prior candlestick do not need to be engulfed.

As used herein, a "bearish engulfing pattern" is a candlestick with a black real  
10 body totally covering, "engulfing" the prior day candlestick's real body. The market should be in a definable trend, not chopping around sideways. The shadows of the prior candlestick do not need to be engulfed.

As used herein, a "harami" is the reverse of the engulfing pattern. The  
formation is comprised of two candlesticks. The first candlestick consists of a long  
real body. The second candlestick consists of a short real body of opposite color (e.g.,  
15 if the long real body of the first candlestick is black, then the short real body of the second candlestick is white). The short real body of the second candlestick is completely within the long real body of the first candlestick.

As used herein, a "harami cross" is a harami pattern in which the second  
candlestick is a doji. The harami cross is an important reversal sign, especially if the  
20 first candlestick is in a downtrend.

As used herein, a "gap" is a significant price movement of a security between  
two trading sessions, such that there is no overlap in the trading ranges for the two  
days and that the second day's opening price is outside the first day's trading range,  
either above it or below it.

As used herein, a "star" is a candlestick formation consisting of a small real  
25 body that gaps away from the real body of the preceding candlestick. The real body of the star should not overlap the real body of the preceding candlestick. The color (e.g., white or black) of the star is not important, and a star may occur at either market tops or market bottoms.

As used herein, a “doji” is a candlestick which looks like a plus sign (“+”), represents the following: (i) the open price is equal to or very close to the close price, (ii) there is no real body, (iii) the high price is above the open price, and (iv) the low price is below the open price. The length of the upper shadow and the length of the lower shadow of a “doji” line may vary. For example a “doji” that looks like a dot (“.”), means that the open price is equal to or very close to the close price, the high price and the low price.

As used herein, a “doji star” is a doji which gaps above the previous candlestick’s real body in an uptrend, or gaps below the previous candlestick’s real body in a falling market. Two popular doji stars are the morning star and the evening star.

As used herein, a “morning star” is a bullish bottom reversal pattern, and is the opposite of an “evening star”. The formation is comprised of three candlesticks. The first candlestick consists of a tall black real body followed by the second candlestick having a small real body. The small real body of the second candlestick has a lower opening price than the first candlestick’s real body (a star pattern). The third candlestick has a white real body that moves well into the first candlestick’s black real body.

As used herein, an “evening star” is a bearish top reversal pattern, and is the opposite of a “morning star”. The formation is comprised of three candlesticks. The first candlestick consists of a long white real body. The second candlestick forms a star, followed by the third candlestick, which has a black real body that moves sharply into the first white candlestick.

As used herein, a “morning doji star” is a doji star in a downtrend, and is the opposite of an “evening doji star”. The formation is comprised of three candlesticks, with the morning doji star being the second candlestick. The third candlestick consists of a long white real body that closes well into the first candlestick’s black real body. If the third candlestick is black and gapped lower, the bullishness of the doji is invalidated.

As used herein, an “evening doji star” is a doji star in an uptrend, and is the

opposite of a “morning doji star”. The formation is comprised of three candlesticks, with the evening doji star being the second candlestick. The third candlestick consists of a long black real body that closes well into the first candlestick’s white real body. If the third candlestick is white and gapped higher, the bearishness of the doji is

5 invalidated.

As used herein, an “abandoned baby” is similar to the family of morning star and evening star patterns. It is almost the same as the morning doji star (e.g., a bullish abandoned baby) and the evening doji star (e.g., a bearish abandoned baby). The difference is the shadows on the doji gaps below the shadows of the first and third  
10 candlesticks for the abandoned baby bottom. The formation is comprised of three candlesticks, with the abandoned baby being the second candlestick. The third candlestick consists of a long real body that closes well into the first candlestick’s real body. The first candlestick indicates the prior trend. The third candlestick is the opposite color of the first candlestick and gaps in the opposite direction. There are no  
15 shadows overlapping between the doji and the other two candlesticks.

As used herein, an “upside gap” is usually considered a bullish continuation sign. The formation is comprised of three candlesticks. The first and second candlesticks both have long white real bodies, with a gap between them. The third candlestick has a black real body that fills the gap between the first two candlesticks.

20 As used herein, a “two crows” is usually considered a bearish reversal sign. The formation is comprised of three candlesticks. The first candlestick has a long white real body. The second candlestick has a black real body that gaps above the first candlestick’s real body. The third candlestick has a black real body that opens within the real body of the second candlestick and closes within the real body of the first  
25 candlestick.

As used herein, a “rising three” is usually considered a bullish continuation sign. The formation is comprised of five candlesticks. The first candlestick has a long white real body. The second, third, and fourth candlesticks have small real bodies and follow a brief downtrend pattern, but stay within the price range of the first

candlestick. The fifth candlestick has a long white real body that closes above the close price of the first candlestick.

As used herein, a “falling three” is usually considered a bearish continuation sign. The formation is comprised of five candlesticks. The first candlestick has a long black real body. The second, third, and fourth candlesticks have small real bodies and follow a brief uptrend pattern, but stay within the price range of the first candlestick. The fifth candlestick has a long black real body that closes below the close price of the first candlestick.

As used herein, a “falling raindrop” is a candlestick with a small real body. The real body of the falling raindrop gaps below the real body of the previous candlestick.

As used herein, a “shooting star” is a candlestick with a small real body near the lower end of the trading range, with a long upper shadow. The real body of the shooting star gaps above the real body of the previous candlestick. The color (e.g., white or black) of the body of the shooting star is not critical. A shooting star is not usually considered a major bearish reversal sign, only a warning.

#### Figure 21: Resistance line study window -- daily

Figure 21 illustrates a resistance line study (daily) window 2300 according to one embodiment. The graph on which the resistance lines are placed may be a candlestick study. A series of candlesticks 2301, one for each time period, may be displayed. For more detail on candlesticks, refer to Figure 11. Upper resistance lines 2302, 2304, and 2306 and lower resistance lines 2303, 2305, and 2307 may be identified.

Each pair of resistance lines (e.g., 2302 and 2303, 2304 and 2305, 2306 and 2307) may be drawn on the graph in response to the patterns reaching at least a user-specified number of time periods. For more detail on user-specified parameters for resistance lines, refer to Figure 10.



Figure 22: Resistance line study window -- 5 minute

Figure 22 illustrates a resistance line study (5 minutes) window 2400 according to one embodiment. The graph on which the resistance lines are placed may be a candlestick study. A series of candlesticks 2401, one for each time period, may be displayed. For more detail on candlesticks, refer to Figure 11. Upper resistance lines 2402, 2404, and 2406 and lower resistance lines 2403, 2405, and 2407 may be identified.

Each pair of resistance lines (e.g., 2402 and 2403, 2404 and 2405, 2406 and 2407) may be drawn on the graph in response to the patterns reaching at least a user-specified number of time periods. For more detail on user-specified parameters for resistance lines, refer to Figure 10.

Figure 23: Buy/Sell Indicator window

Figure 23 illustrates a buy/sell indicator window 2500 according to one embodiment. The buy/sell indicator window 2500 may be included within a view screen 155. The view screen 155 may be displayed on monitor 154, of Figure 2. The buy/sell indicator window 2500 may include one or more categories, such as a buy category 2501, a sell category 2502, an inconclusive category 2503, and an inactive category 2504. For more detail on categories, refer to Figure 13.

In one embodiment, a user would first select one or more studies from a list of studies for a particular user-specified security. Second, the user would enter one or more parameters for the user-selected studies. Third, as shown in Figure 23, the real-time results of the user-selected studies for each security are displayed. The buy category 2501 may include the momentum:21 periods study. The sell category 2502 may include the bollinger bands study. The inconclusive category 2503 may include the following studies: candle, MACD, moving average, and MOM levels: 21. The inactive category 2504 may include the following studies: percent envelopes, resistance lines, D slow stochastics, VAD, price patterns, MOM divergence: 21, rate of change, and relative strength, which are all of the studies that were not selected by the user.

As shown in Figure 23, below the categories, the name of each study available to the user is listed followed by either "N/A" or a ratio (e.g., "60/123 = 48 %"). For

example, the relative strength 2506 study is followed by "N/A". It is noted that the name of each study in the inactive category 2504, may be followed by "N/A", indicating that its ratio is not applicable in this instance. For each study included in the buy category 2501, the sell category 2502, and the inconclusive category 2503, the ratio of the number of profitable buy/sell signals to the total number of buy/sell signals for the past history time period may be displayed. For example, the momentum 2505 study is followed by " $60/123 = 48\%$ ", meaning that 60 of the 123 total number of buy signals for the past history time period were profitable. The 48% is the result of dividing 60 by 123, and truncating after two decimal points.

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Various embodiments further include receiving or storing instructions and/or data implemented in accordance with the foregoing description upon a carrier medium. Suitable carrier media include storage media or memory media such as magnetic or optical media, e.g., disk or CD-ROM, as well as signals such as electrical, electromagnetic, or digital signals, conveyed via a communication medium such as networks 102 and/or 104 and/or a wireless link.

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Although the system and method of the present invention have been described in connection with several embodiments, the invention is not intended to be limited to the specific forms set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as can be reasonably included within the spirit and scope of the invention as defined by the appended claims.

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